

Application No.: 09/896,367

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Docket No.: 146712006000

REMARKS**I. Summary of Rejection**

Claims 1-18 are pending in the application. The examiner rejected claims 1-18 under 35 U.S.C. 103 (a) as being obvious, and therefore unpatentable, in view of Applicant's Admitted Prior Art (AAPA) in view of Bisantz (USP 5,659,216).

The examiner asserted that as to independent claims 1, 8 and 9, AAPA discloses a stator comprising a plurality of laminations supporting coils, which are sequentially energized to cause rotation of a hub supporting one or more discs for rotation in a plane axially over the stator.

The examiner recognized that AAPA fails to disclose the magnets, shaft, hub and shield as recited in the claims.

The examiner asserted that Bisantz, in Figures 2 and 3, discloses a spindle motor comprising: a shaft supported from a base frame and supporting on the outer diameter thereof; a stator (column 1, lines 18-20), a hub (14) supporting a magnet (12) and back iron (15) radially adjacent the stator coils, the back iron supporting a flux shield (lip 20) extending substantially the entire width of the magnet and intervening between the magnet and the base, the flux shield being formed of a magnetic material (low carbon steel) to capture any stray magnetic flux from the motor magnet for the purpose of providing a high degree of rigidity and rotational stability to the system.

According to the examiner, it would have been obvious to one skilled in the art at the time the invention was made to use the shield disclosed by Bisantz on the spindle motor disclosed by AAPA for the purpose of increasing the stiffness or rigidity of the motor structure.

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The examiner asserted that the lip (20) of the Bisantz cup (11) *inherently* captures stray magnetic flux from the Bisantz magnet (12) since the Bisantz lip (20) is made of steel, which is a magnetic material.

II. Applicant's Traversal of Rejection

Applicant respectfully traverses the rejection of claims 1-18.

A. Bisantz does Not Explicitly Teach or Suggest Use or Suitability of Bisantz Lip (20) as a Flux Shield Capturing Stray Magnetic Flux Required by Claim 1

Nowhere in Bisantz is there any teaching or suggestion of the following limitation of claim 1,

"...flux shield extending substantially across the entire width of the motor magnet and intervening between the motor magnet and the base, the flux shield being formed from a magnetic material for capturing stray magnetic flux from the motor magnet."

Bisantz does not teach, suggest, or mention magnetic flux or magnetic flux shielding. Bisantz describes the role of the lip 20 as providing the rotor 10 with a higher degree of rotational rigidity and stability.

Specifically, Bisantz states,

"A still further aspect of the invention is the provision of such a rotor assembly having a high degree of rotational rigidity at high rotational speeds so as to eliminate magnet breakage." (Bisantz, column 2, lines 1-4)

Bisantz also states,

"Those skilled in the art will now recognize that the inclusion of such lip 20 will substantially increase the stiffness or rigidity of the cup 11 without any changes in the material of the cup itself". (Bisantz, column 3, lines 35-38)

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Bisantz further states,

"It has been found that rotor assemblies 10 made according to the present invention have a higher degree of rotational rigidity and stability than similar rotors which do not incorporate the novel lip 20."
(Bisantz, Column 4, lines 5-8)

Thus, nowhere in the Bisantz patent is there any teaching or suggestion of the use or suitability of the lip 20 as a flux shield. Rather the role of the Bisantz lip 20 is to increase rigidity of the Bisantz cup 11.

B. Bisantz does Not Inherently Teach or Suggest Use or Suitability of Bisantz Lip (20) as a Flux Shield Capturing Stray Magnetic Flux Required by Claim 1

Bisantz teaches the use of manufacturing processes that actually reduce flux capturing tendency of lip (20), and instead have the tendency to impart to the lip (20) properties of a source of magnetic flux.

Specifically, Bisantz teaches,

"Further, the rotor assembly 10 may be manufactured using existing equipment, the lip 20 being formed by conventional rolling, spinning or forming equipment." (Bisantz, column 4, lines 14-17)

Applicant respectfully submits that, spinning or rolling the rotor assembly (10) as taught by Bisantz, work-hardens the steel material that comprises the lip (20). This work-hardening of the steel makes it stiffer (a goal of the Bisantz patent), but destroys its flux capturing magnetic properties by forming a grain structure that encourages the formation of individual magnetic dipoles within the lip (20) structure. As a result, the lip (20) will not trap stray flux as well, and in fact it will leak flux from its surface. In other words, applicant respectfully submits that work hardening of the lip (20) through spinning or rolling, actually tends to magnetize the lip (20), such that it will become a flux source instead of capturing straying magnetic flux as required by claim 1.

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Thus, the steel lip (20) disclosed by Bisantz does not inherently act as a flux shield, capturing stray magnetic flux as required by claim 1.

C. Bisantz Teaches Away from a Flux Shield Capturing Stray Magnetic Flux Required by Claim 1

As explained above, the spinning or rolling manufacturing processes taught by Bisantz actually diminish any flux capturing properties of the rotor assembly (10) and in fact, impart to the lip (20) the properties of a magnetic flux source.

Thus, Bisantz actually teaches away from a flux shield capturing stray magnetic flux required by claim 1. Instead, Bisantz teaches a lip (20) produced by manufacturing processes that will impart to the lip (20) properties of a magnetic source, which is the opposite of the flux shield required by claim 1.

D. Arguments as to Claim 1 Apply to All of Claims 1-18

Applicant respectfully submits that arguments set forth in the above remarks directed to claim 1 apply to each of the other independent claims 8 and 9 and to all of the claims that depend from the independent claims. Therefore, applicant respectfully submits that neither AAPA nor Bisantz nor any combination thereof teaches or suggests the subject matter of claims 1-18.

III. Conclusion

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue. If it is determined that a telephone conference would expedite the prosecution of this application, the Examiner is invited to telephone the undersigned at the number given below.

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In the event the U.S. Patent and Trademark office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to Deposit Account No. 03-1952 referencing docket no.146712006000. However, the Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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Respectfully submitted,

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